
Features

- | Wide operating voltage (V_{1mA}) range from 18V to 1800V
- | Fast responding to transient over-voltage.
- | Large absorbing transient energy capability.
- | Low clamping ratio and no following-on current.

General Information

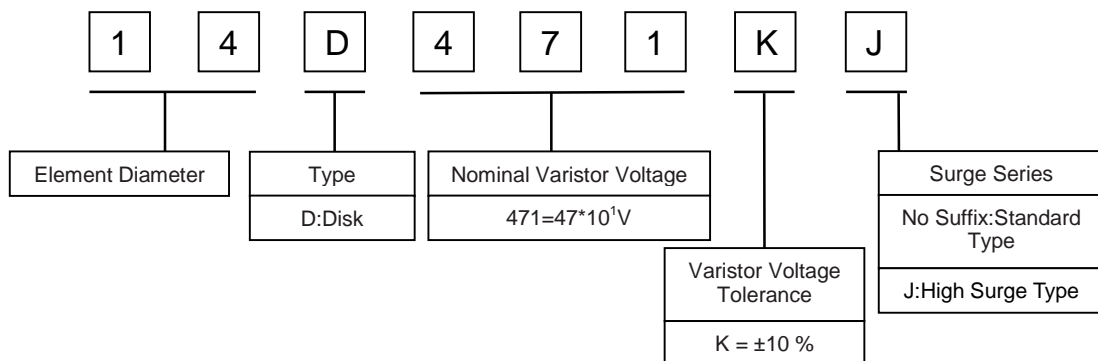
- | Surge protection in consumer electronics
- | Surge protection in industrial electronics
- | Relay and electromagnetic valve surge absorption
- | Transistor, diode, IC, thyristor or triac semiconductor protection
- | Surge protection in electronic home appliances, gas and petroleum appliances



General Characteristics

- | Body: Nickel Plated
- | Devices with No Leads: Nickel Plated
- | Operating Temperature: -40°C to +85°C
- | Storage Temperature: -40 °C to +125°C
- | Axial Devices: Tin Plated

Part Number Code





Electrical Characteristics

Type Number	Varistor Voltage	Max. Allowable Voltage		Max. Energy (2ms) (J) Standard	Max. Clamping Voltage (8/20 μ s)		Withstanding Surge Current (8/20 μ s) I(A) Standard	Rated Power (W)	Typical Capacitance (Reference) @1KHz(pf)
		V _{AC} (V)	V _{DC} (V)		I _P (A)	V _C (V)			
14D180K	16~20	11	14	3.2	10	38	1000	0.1	18000
14D220K	20~24	14	18	4.0	10	43	1000	0.1	15000
14D270K	24~30	17	22	4.9	10	53	1000	0.1	10000
14D330K	30~36	20	26	5.9	10	65	1000	0.1	8500
14D390K	35~43	25	31	7.0	10	77	1000	0.1	7500
14D470K	42~52	30	38	8.5	10	93	1000	0.1	6500
14D560K	50~62	35	45	10.1	10	110	1000	0.1	5600
14D680K	61~75	40	56	12.2	10	135	1000	0.1	4700
14D820K	74~90	50	65	14.8	50	135	4500	0.6	3900
14D101K	90~110	60	85	18.0	50	165	4500	0.6	3400
14D121K	108~132	75	100	21.6	50	200	4500	0.6	3100
14D151K	135~165	95	125	27.0	50	250	4500	0.6	3000
14D181K	162~198	115	150	32.4	50	300	4500	0.6	1030
14D221K	185~225	130	170	36.0	50	340	4500	0.6	970
14D271K	198~242	140	180	39.6	50	360	4500	0.6	840
14D201K	216~264	150	200	43.2	50	395	4500	0.6	710
14D241K	243~297	175	225	48.6	50	455	4500	0.6	650
14D301K	270~330	195	250	54.0	50	505	4500	0.6	600
14D331K	297~363	210	275	59.4	50	550	4500	0.6	550
14D361K	324~396	230	300	64.8	50	595	4500	0.6	500
14D391K	351~429	250	320	70.2	50	650	4500	0.6	480
14D431K	387~473	275	350	77.4	50	710	4500	0.6	440
14D471K	423~517	300	385	84.6	50	775	4500	0.6	420
14D511K	459~561	320	418	84.6	50	842	4500	0.6	390
14D561K	504~616	350	460	84.6	50	920	4500	0.6	360
14D621K	558~682	385	505	84.6	50	1025	4500	0.6	320
14D681K	612~748	420	560	84.6	50	1120	4500	0.6	290
14D751K	675~825	460	615	90.0	50	1240	4500	0.6	260
14D781K	702~858	485	640	93.6	50	1290	4500	0.6	230
14D821K	738~902	510	670	98.4	50	1355	4500	0.6	230
14D911K	819~1001	550	745	109.2	50	1500	4500	0.6	200
14D951K	855~1045	580	780	113.7	50	1570	4500	0.6	190
14D102K	900~1100	625	825	120.0	50	1650	4500	0.6	180
14D112K	990~1210	680	895	132.0	50	1815	4500	0.6	150
14D152K	1350~1650	900	1220	179.0	50	2475	4500	0.6	140
14D182K	1620~1980	1000	1465	216.0	50	2970	4500	0.6	120

Note: The energy (10/1000 μ s) is about 1.4 times of energy(2ms)



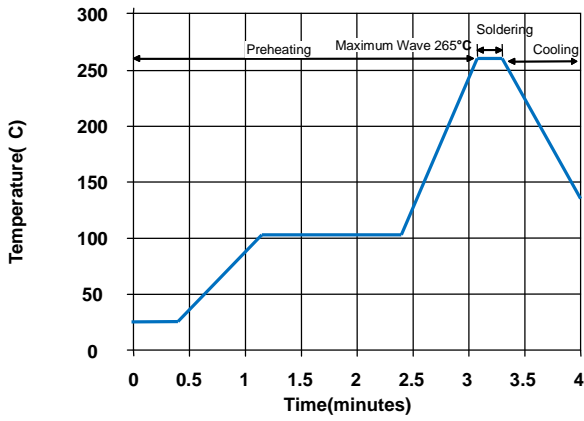
Electrical Ratings

Items	Test Condition/Description	Requirement					
Varistor Voltage	The voltage between two terminals with the specified measuring current 1mA.DC applied is called Vb.	To meet the Specified value					
Maximum Allowable Voltage	The recommended maximum sine wave voltage (RMS) or the Maximum DC voltage can be applied continuously.						
Maximum Clamping Voltage	<p>The maximum voltage between two terminals with the specification standard impulse current. Applied waveform: 8/20μs</p> <p style="text-align: center;"> $T_1=1.25 \cdot T=8\mu s \pm 20\%$ $T_2=20\mu s \pm 20\%$ </p>						
Rated Wattage	The maximum average power that can be applied within the specified ambient temperature.						
Energy	The maximum energy within the varistor voltage change of $\pm 10\%$ when one impulse of 10/1000 μ s or 2ms is applied.						
Withstanding Surge Current	The maximum current within the varistor voltage change of $\pm 10\%$ with the standard impulse current (8/20 μ s) applied one time.						
Surge Life	<p>The change of Vb shall be measured after the impulse listed below which is applied 10,000 times continuously with the interval of ten seconds at room temperature.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td rowspan="2" style="text-align: center;">14Φ series</td> <td style="text-align: center;">180K to 680K</td> <td style="text-align: center;">75A (8/20μs)</td> </tr> <tr> <td style="text-align: center;">820K to 182K</td> <td style="text-align: center;">150A (8/20μs)</td> </tr> </tbody> </table>	14 Φ series	180K to 680K	75A (8/20 μ s)	820K to 182K	150A (8/20 μ s)	$\frac{\Delta V_b}{V_b} \leq \pm 10\%$
14 Φ series	180K to 680K		75A (8/20 μ s)				
	820K to 182K	150A (8/20 μ s)					



Soldering Recommendation

Wave Lead Free Soldering Recommendation



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds (max.)
Soldering	1 time

Recommendation Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 seconds (max.)
Distance from Varistor	2mm (min.)

Dimensions

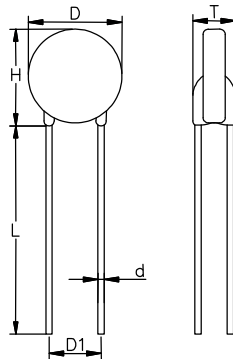


TABLE 1		
Symbol	Millimeters	Inches
H(max)	20.0	0.787
L(min)	15.0	0.591
D(max)	17.0	0.669
D1(±1.0)	7.5	0.295
T(max)	TABLE 2	
d(±0.1)	0.8	0.031
Packaging Quantity: 250pcs/bag		

TABLE 2---T(max.)

Model	Millimeters	Inches	Model	Millimeters	Inches
180K~390K	7.5	0.295	431K~561K	10.0	0.394
470K~680K	8.0	0.315	621K~781K	10.5	0.413
820K~151K	8.5	0.335	821K~112K	11.0	0.433
181K~271K	9.0	0.354	152K	11.5	0.453
331K~391K	9.5	0.374	182K	12.0	0.472